

**FACT SHEET FOR NPDES PERMIT WA0040738**

**Western Wood Preserving Company**

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## INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the State of Washington to administer the NPDES permit program. Chapter 90.48 RCW defines the Department of Ecology's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the State include procedures for issuing permits (Chapter 173-220 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

<b>GENERAL INFORMATION</b>	
Applicant	Western Wood Preserving Company
Facility Name and Address	Western Wood Preserving Company 1313 Zehnder Street Sumner, Washington 98390
Type of Facility:	Wood preserving
SIC Code	2491
Discharge Location	Waterbody name: White River Outfall 001: Latitude: 47° 12' 30" N Longitude: 122° 14' 13" W Outfall 002: Latitude: 47° 12' 30" N Longitude: 122° 14' 13" W
Water Body ID Number	WA-10-1030

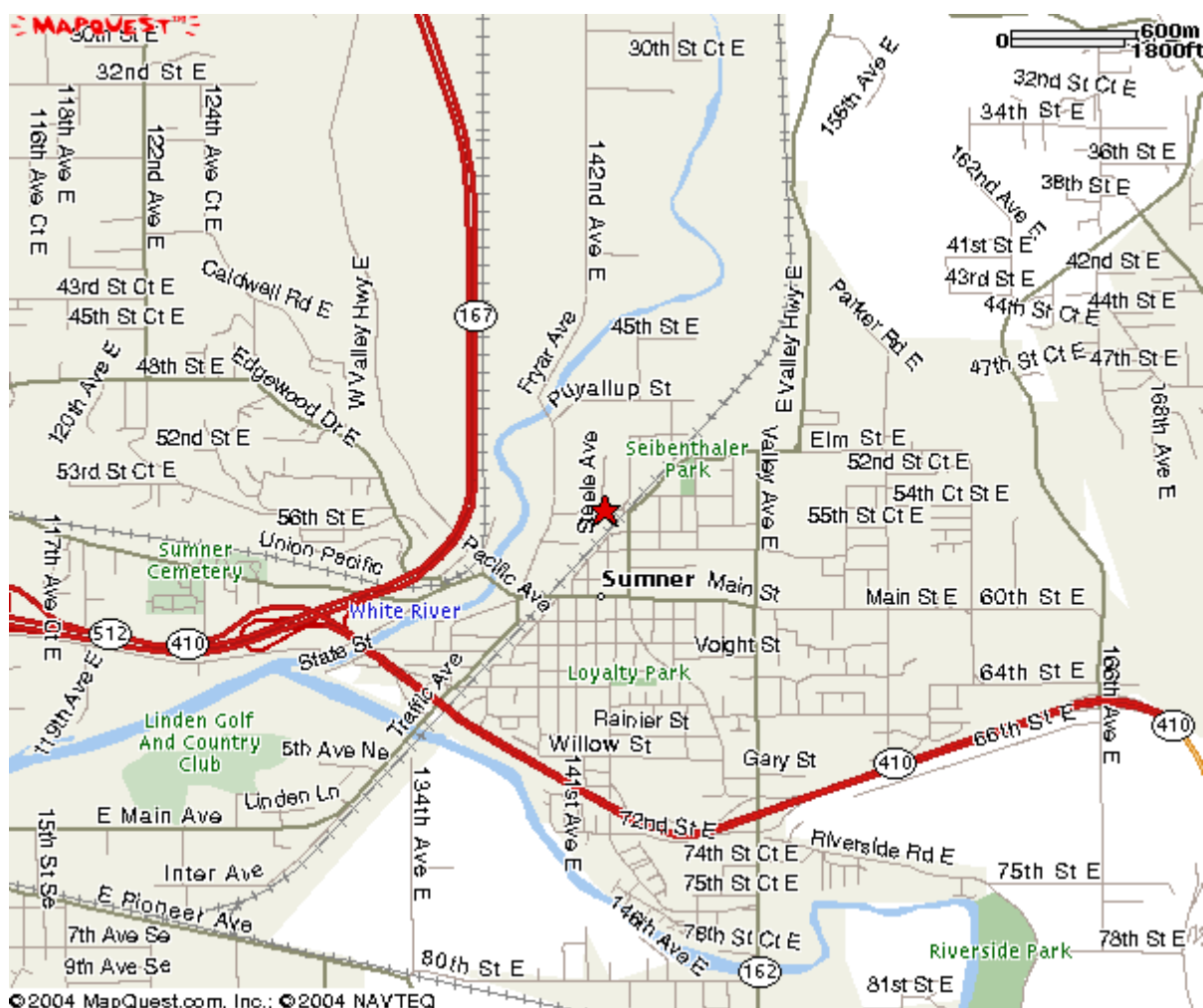


Figure 1. Location of Facility.

## BACKGROUND INFORMATION

### DESCRIPTION OF THE FACILITY

Western Wood Preserving Company (WWPC) is located in Sumner, Washington. WWPC has been a manufacturer of pressure treated wood products since 1971. The facility includes 12 acres of treatment, drying and storage areas, and produces treated wood products for residential and commercial consumers in the wholesale market. No process related wastewater is discharged from the site; the only discharge is stormwater. The facility is divided into two distinct areas: one on each side of Pease Avenue which runs northerly and southerly through the facility (see Figure 2). The area east of Pease Avenue is the "white wood" area where only untreated wood is stored. The area west of Pease Avenue contains the storage area for treated wood.

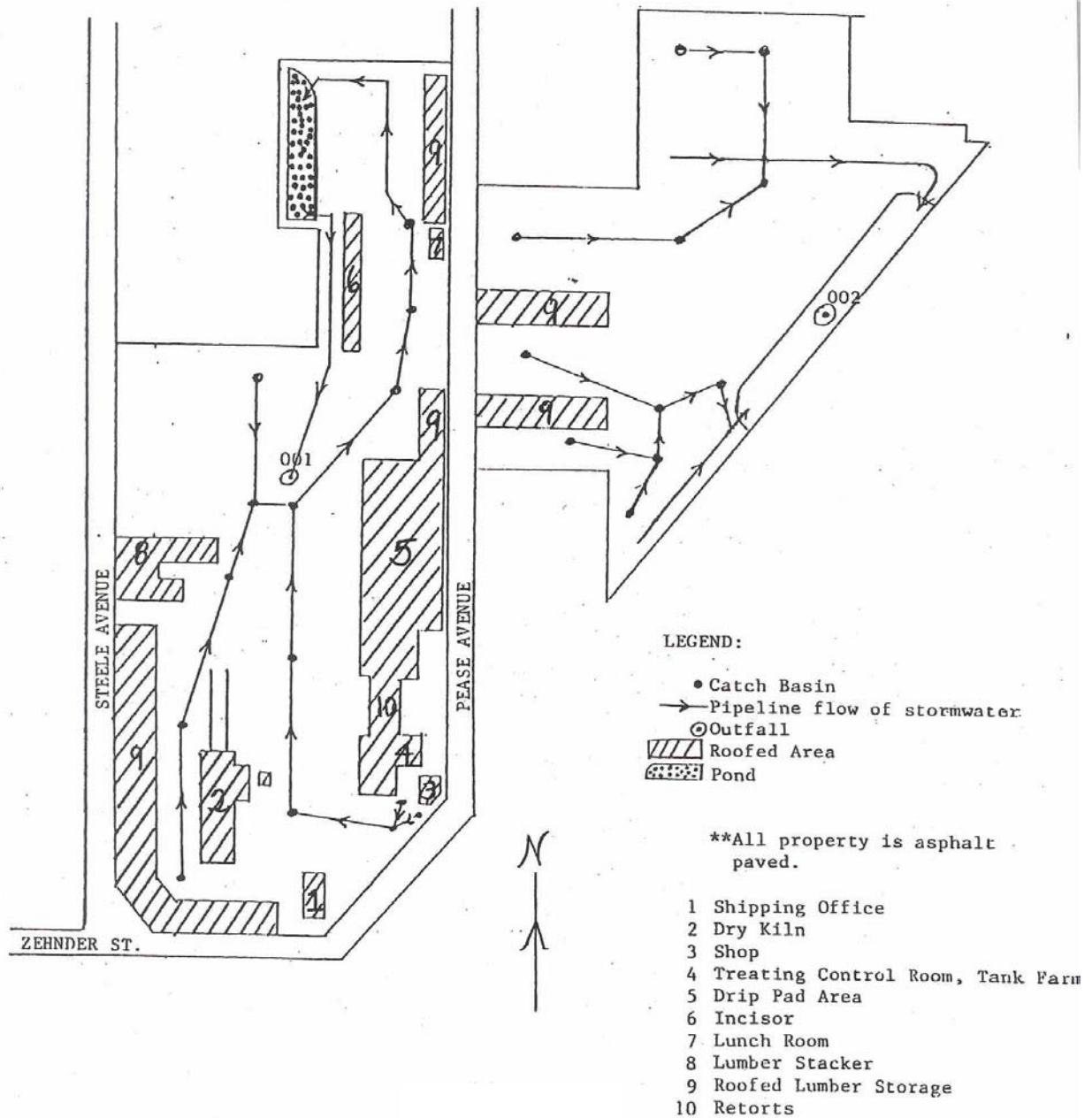


Figure 2. site plan

## HISTORY

The facility received its first National Pollution Discharge Elimination System (NPDES) Permit for the discharge of stormwater from the site in 1993. The Permit was appealed by WWPC and later modified in 1995.

The modified Permit allowed for discharge of pollutants at a higher concentration with due consideration of dilution in the City of Sumner storm sewer. Since the issuance of the Permit, the facility has implemented the required Best Management Practices (BMPs), characterized the toxicity of the effluent, developed a Stormwater Pollution Prevention Plan (SWPPP), spill plan, and a solid waste control plan. The facility has also constructed a lined pond with vegetation that is intended to provide some reduction of pollutants in the stormwater runoff from the treated wood storage area. The US Environmental Protection Agency (EPA) announced a voluntary decision by industry to move consumer use of treated lumber products away from chromated copper arsenate (CCA) pressure-treated wood by December 31, 2003 in favor of new alternative wood preservatives. As of January 1, 2004, EPA does not allow CCA products to be used to treat wood intended for most residential settings. As a result, WWPC has added alkaline copper quaternary (ACQ) as a wood preservative. WWPC does not currently have plans to enlarge or change facility operations.

## INDUSTRIAL PROCESS

Untreated wood is delivered to the facility by truck and stored in the eastern portion of the facility. Occasionally, lumber is also delivered via rail, which runs northerly and southerly immediately west of the covered drip pad. The eastern portion is also used for processing the lumber prior to treating. A forklift is dedicated to this area. Some of the untreated wood is stored in the open and some under cover. Approximately 60 percent of the wood is incised prior to treatment. This is done at the incisor located north of the drip pad area. Approximately 20 percent of the untreated wood is dried in the kiln located in the southwestern portion of the facility (in the area containing the treated wood storage area). Kiln condensate and boiler blowdown are pumped to a recovery tank located in the tank farm and reused.

The lumber is treated with a water-borne type C chromated copper arsenate (CCA) preservative consisting of hexavalent chromium as  $\text{CrO}_2$ , copper as  $\text{CuO}$ , and arsenic as  $\text{As}_2\text{O}_5$ . The CCA preservative is delivered as a 50 percent solution to the site via tanker truck. As mentioned previously, the lumber is also treated with ACQ preservative. The ACQ preservative solution is delivered as a 14 percent solution to the site via tanker truck. The unloading area is designed to contain the volume of one tanker truck. The tank farm containing the concentrated preservative and various dilutions is completely enclosed. A 10,000 gallon tank is used to store the concentrated preservative while four 30,000 gallon tanks are used to store the preservatives at various concentrations. These tanks have conical bottoms with drains to facilitate removal of any sediments. The tank farm also has two 20,000 gallon recovery tanks to store make-up water obtained from the kiln condensate, drippage, incidental rain in the drip pad area, and any rainwater collected in the retort area sumps. Spent solution as well as any sediment laden tank bottoms are filtered at the pump filter and the liquid is reused.

The wood treatment process begins with delivery of untreated wood to the north entrance of the covered drip pad. An operator transfers the lumber to a tram using a forklift dedicated to the drip pad. The trams are sloped to the center sump which traverses the length of the drip

pad. The tram loaded with lumber is allowed to enter the retort where a vacuum is applied. While under vacuum, the retort is filled with either the CCA or ACQ preservative. The vacuum is released and 110 pounds of pressure is applied to the wood. After the pressure period, the spent preservative is returned to the working tanks and a final vacuum is applied in the retort. Any excess preservative removed during the final vacuum is also returned to the working tanks.

The pressurized wood treatment occurs in a single retort. The process is completely automated and computerized with a PLC Controller. The computerized control includes filling and emptying of the retorts at set times and pressures in addition to assuring that only a certain mixture of preservative is pumped from the preservative solution tanks.

The tank farm/retort area was constructed on a 71-pile foundation to make it earthquake proof. The concrete floor contains a plastic impermeable layer to prevent any unexpected migration of preservative to the groundwater.

Treated wood from the retort is first stored in the drip pad area next to the retort. The drip pad area is fully roofed. The drip pad is certified annually by a professional engineer. Most of the drippage from the treated wood goes to the center drain, which is sloped to a dead-end sump located at the retort door. Retort sump sludge is placed into a 55-gallon drum which, when full, is moved into the hazardous waste storage shed located in the north central portion of the facility. Sludge is disposed of by an authorized contractor within 90 days of generation. The drip pad area is bermed to prevent run-on and run-off of stormwater and treatment preservatives and residue.

All equipment used on the drip pad is dedicated to the area. Any equipment taken out for maintenance is triple washed before exiting the area. As a rule, all personnel must wear protective rubber boot covers while working in the drip pad area.

Treated wood is taken from the trams and stored in the northeastern side of the drip pad to continue drying for anywhere between 3-14 days. This portion of the drip pad is sloped to the east to two steel-lined sumps which traverse the eastern portion of the drip pad. The fluid from the sump is automatically discharged to the recovery tank via a level actuated pump.

When treated wood is drip-free and dry, it is transferred to the storage area west of Pease Avenue. This is done via dedicated forklifts. Treated lumber is stored both under roof as well as in the open. Treated lumber stored in the open is covered with water-resistant wraps to minimize contact with rain. Lumber stored under cover is taken directly to the Stacker for packaging.

WWPC produces approximately a total of 25-30 million board feet per year of pressure treated lumber and plywood.

#### DISCHARGE OUTFALL

Two outfalls exist on the site that discharge stormwater runoff from two distinct drainage areas. Outfall 001 collects stormwater from the treated wood storage area west of Pease Avenue. Stormwater collected via fourteen catch basins is first directed to a lined vegetative pond (biotreatment pond) before discharging into the City of Sumner's storm sewer. This drainage area is completely paved. The drainage area is approximately 277,385 square feet.



Outfall 002 collects stormwater from the “white wood” storage area east of Pease Avenue. Eleven catch basins drain approximately 187,855 square feet of pervious area and direct the flow to a bioswale which drains to the City of Sumner storm sewer at outfall 002. The drainage area is completely paved.

#### *PERMIT STATUS*

The previous permit for this facility was issued on May 26, 1999. The previous permit placed effluent limitations on arsenic, chromium, copper, oil and grease, pH, and total suspended solids.

An application for permit renewal was submitted to the Department on May 14, 2003 and accepted by the Department on May 21, 2004.

#### *SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT*

The facility last received an inspection on February 17, 2004.

During the history of the existing permit, the Permittee has remained in compliance based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department except for the parameter chromium for outfall 001. Chromium limitations have been violated for four months: December 2000, January 2001, January 2002, and January 2003 for outfall 001. WWPC suspects the violations for December 2000 and January 2001 may be attributed to “laboratory error during analysis.” WWPC suspects the violation for January 2002 may be due to “heavy rainfall and sluggish fixation.” WWPC suspects the violation for January 2003 may be attributed to “excessive rain, slow fixation, and half-wrapping pressure treated lumber to reduce mold.”

WWPC’s explanations to these violations have been noted and there have not been any violations during January of 2004. This is important to note since the violations appeared to be cyclic in nature, occurring at the beginning of each calendar year which is indicative of the facility’s operational schedule (i.e. annual cleaning of chemical storage tanks).

#### *STORMWATER CHARACTERIZATION*

The proposed wastewater discharge is characterized for the following regulated parameters. The data is obtained from the DMRs from September 1999 through March 2004.

**Table 1: Stormwater Characterization**

Parameter	Outfall 001 Concentration (Treated Product Storage Area)				Outfall 002 Concentration ("White Wood" Storage Area)			
	Mean	95th Percentile	Max	Min	Mean	95th Percentile	Max	Min
Arsenic, µg/L	21	58	61	11	13	23	26	5
Chromium, µg/L	26	110	120	8	18	22	35	10
Copper, µg/L	13	25	44	2	12	28	37	2
Oil and Grease, mg/L	2	3	8	1	2	5	5	1
TSS, mg/L	4	22	36	0	3	6	13	0
pH, standard units	7.4	NA	7.8	6.8	7.0	NA	7.6	6.8

## **PROPOSED PERMIT LIMITATIONS**

Federal and State regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations are based upon the treatment methods available to treat specific pollutants. Technology-based limitations are set by regulation or developed on a case-by-case basis (40 CFR 125.3, and Chapter 173-220 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992). The more stringent of these two limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the State of Washington were determined and included in this permit. Ecology does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation. Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department of Ecology. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

### *TECHNOLOGY-BASED EFFLUENT LIMITATIONS*

#### Process Wastewater

EPA has promulgated effluent guidelines and standards for the timber products processing point source category in Code of Federal Regulations 40 CFR Part 429. WWPC falls under Subcategory F of 40 CFR Part 429 which deals with pressure wood preserving treatment processes employing water borne inorganic salts. Effluent limitation representing “best practicable control technology currently available” (BPT) and “best available technology economically achievable” (BAT) for direct dischargers within this Subcategory is zero discharge of process wastewater pollutants into navigable waters. This is considered equivalent to “all known, available, and reasonable methods of prevention, control, and treatment” (AKART) for this industry under State laws.

Process wastewater is defined in 40 CFR Part 429.11. The term “process wastewater” specifically excludes non-contact cooling water, material storage yard runoff (either raw natural or process wood storage), and boiler blowdown. However, these wastewaters are not authorized for discharge as part of this permit and must be authorized prior to discharge into the waters of the State.

For the purposes of this Permit, process wastewater includes all wastewaters generated as part of the conditioning of the wood in the treatment cylinder. Other sources of process wastewater include, but are not limited to, preservative formulation; recovery and regeneration wastewater; water used to wash excess preservative from the surface of preserved wood; and condensate from drying kilns used to dry preserved or surface protected lumber. Any rainwater or stormwater which falls in the retort area, drip pad area, or tank farm area is also considered process wastewater.

Only discharge of stormwater from the “white wood” or treated product storage areas are covered in this Permit.

### Stormwater

Technology-based limitations for stormwater discharge are based on an evaluation of AKART applicable to the stormwater discharge. Currently, the control technology in reducing pollutants in the effluent is generally through the application of best management practices (BMPs). Stormwater discharge at outfall 001 is allowed to pass through a lined vegetative pond (bio-treatment pond) and at outfall 002 through a grassy bioswale. The degree of treatment has not been evaluated to establish how much of the pollutant loading is being removed in these systems. However, a reduction in the effluent metal concentrations has been observed in the previous permit cycle with the implementation of BMPs and bio-treatment pond/bioswale systems. A performance-based limitation for chromium was established in a previous permit since existing effluent concentrations for chromium was determined to be more restrictive than that based on the chromium water quality criteria and a dilution factor of 20. Performance-based limitations for arsenic (new in this proposed permit) have been re-evaluated and established to reflect the switch from CCA to ACQ type of preservative. Chromium, TSS, and oil & grease technology-based limits are retained in this proposed permit. Technology-based limitations for copper were not evaluated at this time since WWPC has recently added the ACQ type of preservative and there is insufficient data to determine the actual affect of this change with regard to the copper concentration in the discharge.

Chromium: The performance-based limitation of 100 µg/L was established in a previous permit. This limitation would be retained in the proposed permit as being the most conservative and is representative of the WWPC’s current stormwater treatment system.

Arsenic: The data utilized to develop performance-based limitations for arsenic is from September 1999 through March 2004. Please refer to Appendix C – Technical Calculations of this permit for a copy of the calculation spreadsheet. The performance-based limit for arsenic was determined to be 67 µg/L on a maximum daily basis.

TSS: The technology-based limit for total suspended solids (TSS) was proposed (50 mg/L) in a previous permit cycle with an option provided for the Permittee to conduct a site-specific study to evaluate control technology to reduce TSS. The Permittee has chosen not to conduct this evaluation. Thus, by default, the technology based effluent limitation for TSS is 50 mg/L.

Oil & Grease: A previous permit has also established an oil and grease effluent limitation of 10 mg/L, as a daily maximum limit. This is a technology-based limitation. This limitation would be retained in the proposed permit. This limitation reflects effluent quality that can be obtained

through the use of a properly operated and maintained oil/water separator or other equivalent control technology.

#### *SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS*

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Surface water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin wide total maximum daily loading study (TMDL).

#### NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the State of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

#### NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The U.S. EPA has promulgated 91 numeric water quality criteria for the protection of human health that are applicable to Washington State (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

#### NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the State of Washington.

#### ANTIDEGRADATION

The State of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

#### CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

#### MIXING ZONES

The Water Quality Standards allow the Department of Ecology to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

#### DESCRIPTION OF THE RECEIVING WATER

The facility discharges stormwater to the City of Sumner's storm sewer which ultimately discharges to the White River which is designated as a Class A receiving water in the vicinity of the City storm sewer outfall. The City's storm sewer outfall is located at approximately river mile 1.1. There is approximately 0.5 miles of storm sewer between the City's stormwater outfall to the White River and the location where WWPC's stormwater enters the City's storm sewer system.

The characteristic uses for Class A waters include the following:

water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

#### SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. Due to the intermittent nature of the stormwater discharge only the acute standards for water quality contained in WAC 173-201A are considered. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized in Table 2:

**Table 2. Relevant Water Quality Criteria for Receiving Waterbody**

Total Ammonia	7.94 mg/L (expressed as N) acute (based on a receiving water temperature of 15.6 °C and a receiving water pH of 7.8)
Arsenic	360 µg/L (based on the dissolved fraction); 0.018 µg/L (based on human health based limitations)
Copper	6.33 µg/L acute (based on a receiving water hardness of 35 mg/L)
Chromium (hex)	15 µg/L (based on hexavalent form applied as total chromium)
Chromium (tri)	232 µg/L (based on a receiving water hardness of 35 mg/L)
Dissolved Oxygen	8 mg/L minimum
pH	6.5 to 8.5 standard units with a human caused variation of 0.5 units within this range
Turbidity	less than 5 NTU above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

The White River in the vicinity of the City of Sumner's storm sewer discharge is listed on the Washington State 2002/2004 303(d) list for fecal coliform and temperature. There is no evidence that either of these parameters would be impacted by WWPC's stormwater discharge.

#### CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

In the settlement of the WWPC appeal of a previous permit, Ecology agreed that the application of water quality criteria to stormwater discharge at the point of discharge into the City of Sumner's storm drain system is not necessary for the protection of aquatic life. The City of Sumner's storm drain is classified as waters of the State and, as such, is subject to the Water Quality Standards for Surface Waters of the State of Washington (Chapter 173-201A WAC). The Sumner storm drain system into which WWPC discharges is entirely underground. It does not contain habitat or aquatic life, further it is extremely unlikely that the storm drain system is, or will be, used for migration or translocation of indigenous organisms. As a result, in the settlement, the Department agreed that the point of compliance with water quality standards should be at the point the storm drain discharges into the White River, and not within the storm drain itself.

At the point where WWPC discharges into the storm drain, the storm drain is about 14 feet below ground level. The distance from the point of WWPC's discharge into Sumner's storm drain to the point where the Sumner's storm drain discharges into the White River is about one-half mile. The total drainage area served by the storm drain is about 193 acres. WWPC's drainage area is approximately 10.68 acres, which is approximately five percent of the total drainage area for Sumner's storm drain. A dilution factor of 20 is thus calculated for WWPC's stormwater discharge into Sumner's storm drain before it is discharged into the White River. It is assumed that WWPC contributes 5 percent of the total City of Sumner stormwater discharge and it is also assumed that the stormwater discharge is under complete-mixed conditions.



In the settlement, a copper effluent limitation of 90 µg/L was established based on a receiving water hardness of 35 mg/L (as CaCO<sub>3</sub>) and a dilution factor of 20. An effluent limit for chromium was established at 100 µg/L based on WWPC's current ability to meet 100 µg/L (this was more stringent than a 256 µg/L limit based on a dilution factor of 20). In the settlement, no changes were made to the arsenic limit of 360 µg/L.

It should be noted that since the issuance of the previous permit, the standards for copper and chromium have changed. Based on a hardness of 35 mg/L and a dilution factor of 20, the copper limit would actually be 127 µg/L and the chromium limit would be 300 µg/L. However, since previous limitations are more stringent and were complied with, they were retained in the previous permit.

A pH limitation of 6 to 9 would be retained since this is a demonstrated categorical technology-based limitation imposed on nearly all NPDES Permits. However, the water quality standard of 6.5 to 8.5 (with 0.5 standard units allowed for human activities) would still have to be met at the City of Sumner outfall. It should be noted that WWPC's effluent has been between 6.8 to 7.8 during the 1999-2004 permit cycle.

Water quality criteria for metals in Chapter 173-201A WAC are based on the dissolved fraction of the metal. The Permittee may provide data clearly demonstrating the seasonal partitioning of the dissolved metal in the ambient water in relation to an effluent discharge. Metals criteria may be adjusted on a site-specific basis when data is available clearly demonstrating the seasonal partitioning in the ambient water in relation to an effluent discharge. Metals criteria may also be adjusted using the water effects ratio approach established by USEPA, as generally guided by procedures in USEPA Water Quality Standards Handbook, December 1983, as supplemented or replaced.

#### WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC<sub>50</sub>, EC<sub>50</sub>, IC<sub>25</sub>, etc. All accredited labs have been provided the

most recent version of the Department of Ecology Publication #WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Ecology Publications Distribution Center 360-407-7472 for a copy. Ecology recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

An effluent characterization for acute toxicity was conducted during a previous permit term. In accordance with WAC 173-205-060, the Permittee must repeat the effluent characterization for the following reason:

The Permittee has made changes to processes, materials, or treatment that could result in an increase in effluent toxicity. In accordance with WAC 173-205-050(1), the proposed permit requires another effluent characterization for toxicity.

The requirement for conducting an effluent characterization for chronic toxicity is reserved and may be imposed in the future. At this time, there is insufficient information regarding the dilution of WWPC's stormwater discharge in the White River.

#### HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

Of the 91 numeric human-health based criteria only arsenic has any relevancy to the WWPC site. The human health based criteria for arsenic is 0.018 µg/L based on consumption of water and fish. This is the fresh water criteria and is based on the inorganic fraction of arsenic only. The criteria is applicable at the edge of a mixing zone with a dilution factor established using the river harmonic mean flow. The arsenic human health criteria is based on a 70-year lifetime of daily exposures, two liters/day ingestion rate for drinking water, 6.5 grams/day ingestion rate for fish or shellfish, and a one-in-one million excess cancer risk.

It should be noted that stormwater is a discontinuous discharge and is approximately present only during nine months of the year. It is thus not clear how the criteria (or a modification thereof to allow for a discontinuous exposure) would be applied to stormwater discharge.

The arsenic human health based criteria of 0.018 µg/L as established in the National Toxics Rule differs from the maximum contaminant level (MCL) of 50 µg/L established in the Safe Drinking Water Act (SDWA). The August 5, 1997 Federal Register (California Toxics Rule) cited an EPA document entitled: Issues Related to Health Risk of Arsenic. In this document, EPA summarized the controversial health risk issues associated with regulation of arsenic, but most importantly the document contains a risk management decision made by the EPA assistant administrators of the different offices that deal with arsenic regulation. This decision is written as follows (direct excerpt from document):

*Publish a notice which announces that as a risk management decision, EPA is in the process of conducting a reassessment in order to reconcile the CWA and SDWA criteria. The result of this reassessment would be presented in a risk characterization. During the reassessment, the existing criteria would remain in place. EPA would work with NTR States and others to resolve special problems in the implementation of those criteria through special regulatory relief mechanisms.*



The December 10, 1998 Federal Register (Vol. 63, No. 237, pages 68354-68363) reiterated EPA's position that the criteria for arsenic was currently being re-assessed and that upon completion of the reassessment, EPA would publish the revised criteria as appropriate.

At the present time, the Department does not have an implementation policy on arsenic criteria established in the National Toxics Rule as it applies to stormwater discharge and, as such, it will not be included as an effluent limitation in the Permit at this time. However, best management practices should be continued to be implemented and/or improved to reduce arsenic concentrations in the discharge.

#### SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharge characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards based on the information available at this time. Therefore, no further action is recommended to evaluate sediment toxicity as part of this permit.

#### *GROUND WATER QUALITY LIMITATIONS*

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect beneficial uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

#### *COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED May 26, 1999*

Table 3 shows the proposed and existing effluent limitations for WWPC for both outfalls 001 and 002. The arsenic limitation has been reduced as a result of changing this limitation from a water quality-based approach to a performance-based approach.

**Table 3. Comparison of Proposed and Existing Effluent Limitations.**

Existing Limits	Proposed Limits
Arsenic: 360 µg/L maximum daily limit	Arsenic: 67 µg/L maximum daily limit
Chromium: 100 µg/L maximum daily limit	Chromium: 100 µg/L maximum daily limit
Copper: 90 µg/L maximum daily limit	Copper: 90 µg/L maximum daily limit
Oil and Grease: 10 mg/L maximum daily limit	Oil and Grease: 10 mg/L maximum daily limit
TSS: 50 mg/L maximum daily limit	TSS: 50 mg/L maximum daily limit
pH: between 6 to 9	pH: between 6 to 9

## **MONITORING REQUIREMENTS**

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

The monitoring schedule is detailed in the proposed permit under Condition S.1. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

### *LAB ACCREDITATION*

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories*.

## **OTHER PERMIT CONDITIONS**

### *REPORTING AND RECORDKEEPING*

The conditions of S2 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

### *SPILL PLAN*

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The Permittee has developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the Permittee to update this plan and submit it to the Department.

### *SOLID WASTE PLAN*

The Department has determined that the Permittee has a potential to cause pollution of the waters of the state from leachate of solid waste.

This proposed permit requires, under the authority of RCW 90.48.080, that the Permittee update the solid waste plan designed to prevent solid waste from causing pollution of the waters of the state. The plan must be submitted to the local permitting agency for approval, if necessary, and to the Department.

### *STORMWATER POLLUTION PREVENTION PLAN*

WWPC discharges only stormwater. A Stormwater Pollution Prevention Plan (SWPPP) was required to be developed in the previous NPDES Permit. This proposed Permit requires that the Permittee review the existing SWPPP and update as necessary.

## *GENERAL CONDITIONS*

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual industrial NPDES permits issued by the Department.

## **PERMIT ISSUANCE PROCEDURES**

### *PERMIT MODIFICATIONS*

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards for Surface Waters, Sediment Quality Standards, or Water Quality Standards for Ground Waters, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

### *RECOMMENDATION FOR PERMIT ISSUANCE*

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, protect human health, aquatic life, and the beneficial uses of waters of the State of Washington. The Department proposes that this proposed permit be issued for 5 years.

## **REFERENCES FOR TEXT AND APPENDICES**

David Evans and Associates, Inc.

Drainage Report for Western Wood Preserving - 1313 Zehnder Street, Sumner, WA 98390.  
June 1994.

Environmental Protection Agency (EPA)

National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C. 1988.

Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.  
1991.

Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a. 1985.

Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C. 1983.

Parametrix, Inc.

Toxicity Evaluation of Stormwater Outfall 001 and 002 to *Ceriodaphnia dubia*, *Oncorhynchus mykiss* and *Pimephales promelas* – Prepared for Western Wood Preserving. September 1996.

Toxicity Evaluation of Stormwater Outfall 001 and 002 to *Ceriodaphnia dubia*, *Oncorhynchus mykiss* and *Pimephales promelas* – Prepared for Western Wood Preserving. November 1996.

Toxicity Evaluation of Stormwater Outfall 001 and 002 to *Ceriodaphnia dubia*, *Oncorhynchus mykiss* and *Pimephales promelas* – Prepared for Western Wood Preserving. February 1997.

Toxicity Evaluation of Stormwater Outfall 001 and 002 – *Daphnia pulex*, *Oncorhynchus mykiss* and *Pimephales promelas* – Prepared for Western Wood Preserving. April 1997.

Toxicity Evaluation of Stormwater Outfall 001 and 002 – *Ceriodaphnia dubia*, *Oncorhynchus mykiss* and *Pimephales promelas* – Prepared for Western Wood Preserving. June 1997.

Tsivoglou, E.C., and J.R. Wallace.

Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.). 1972.

Washington State Department of Ecology.

Permit Writer's Manual. Publication Number 92-109. 1994.

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Laws and Regulations(<http://www.ecy.wa.gov/laws-rules/index.html>)

Permit and Wastewater Related Information  
(<http://www.ecy.wa.gov/programs/wq/wastewater/index.html>)

Western Wood Preserving Co.

Oil and Hazardous Material Spill Plan. November 1997.

Solid Waste Control Plan. December 1997.

Storm Water Pollution Prevention Plan. December 1997.

Wright, R.M., and A.J. McDonnell.

In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.). 1979.

## **APPENDIX A--PUBLIC INVOLVEMENT INFORMATION**

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on July 13, 2003 and July 20, 2003 in the *Tacoma News Tribune* to inform the public that an application had been submitted and to invite comment on the reissuance (or issuance) of this permit.

The Department will publish a Public Notice of Draft (PNOD) on (date) in the *Tacoma News Tribune* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Industrial Unit Permit Coordinator  
Department of Ecology  
Southwest Regional Office – Water Quality  
P.O. Box 47775  
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, 360/407-6280, or by writing to the address listed above.

This permit and fact sheet were written by John Diamant, P.E.

## **APPENDIX B--GLOSSARY**

**Acute Toxicity** -- The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

**AKART** -- An acronym for "all known, available, and reasonable methods of treatment".

**Ambient Water Quality** -- The existing environmental condition of the water in a receiving water body.

**Ammonia** -- Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

**Average Monthly Discharge Limitation** -- The average of the measured values obtained over a calendar month's time.

**Best Management Practices (BMPs)** -- Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

**BOD<sub>5</sub>** -- Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD<sub>5</sub> is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD<sub>5</sub> is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

**Bypass** -- The intentional diversion of waste streams from any portion of a treatment facility.

**Chlorine** -- Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

**Chronic Toxicity** -- The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

**Clean Water Act (CWA)** -- The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

**Compliance Inspection - Without Sampling** -- A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

**Compliance Inspection - With Sampling** -- A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

**Composite Sample** -- A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

**Construction Activity** -- Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

**Continuous Monitoring** -- Uninterrupted, unless otherwise noted in the permit.

**Critical Condition** -- The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

**Dilution Factor** -- A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

**Engineering Report** -- A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

**Fecal Coliform Bacteria** -- Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

**Grab Sample** -- A single sample or measurement taken at a specific time or over as short period of time as is feasible.

**Industrial Wastewater** -- Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

**Major Facility** -- A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.



**Maximum Daily Discharge Limitation** -- The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

**Method Detection Level (MDL)** -- The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

**Minor Facility** -- A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

**Mixing Zone** -- An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (Chapter 173-201A WAC).

**National Pollutant Discharge Elimination System (NPDES)** -- The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

**pH** -- The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

**Quantitation Level (QL)** -- A calculated value five times the MDL (method detection level).

**Responsible Corporate Officer** -- A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy - or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

**Technology-based Effluent Limit** -- A permit limit that is based on the ability of a treatment method to reduce the pollutant.

**Total Suspended Solids (TSS)** -- Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

**State Waters** -- Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

**Stormwater** -- That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.



**Upset** -- An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

**Water Quality-based Effluent Limit** -- A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

## APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at <http://www.ecy.wa.gov>.

Calculation Of Ammonia Concentration and Criteria for fresh water. Based on EPA Quality Criteria for Water (EPA 400/5-86-001) and WAC 173-201A. Revised 1-5-94 (corrected total ammonia criterion). Revised 3/10/95 to calculate chronic criteria in accordance with EPA Memorandum from Heber to WQ Stds Coordinators dated July 30, 1992.

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### INPUT

- |   |      |
|---|------|
| 1. Ambient Temperature (deg C; 0<T<30)              | 15.6 |
| 2. Ambient pH (6.5<pH<9.0)                          | 7.80 |
| 3. Acute TCAP (Salmonids present- 20; absent- 25)   | 20   |
| 4. Chronic TCAP (Salmonids present- 15; absent- 20) | 15   |

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### OUTPUT

- |   |         |
|---|---------|
| 1. Intermediate Calculations:                           |         |
| Acute FT  | 1.36    |
| Chronic FT  | 1.41    |
| FPH   | 1.12    |
| RATIO   | 14      |
| pKa   | 9.54    |
| Fraction Of Total Ammonia Present As Un-ionized         | 1.7759% |
| 2. Un-ionized Ammonia Criteria                          |         |
| Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)  | 171.5   |
| Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L) | 37.5    |
| 3. Total Ammonia Criteria:                              |         |
| Acute Total Ammonia Criterion (mg NH3+ NH4/L)           | 9.659   |
| Chronic Total Ammonia Criterion (mg NH3+ NH4/L)         | 2.112   |
| 4. Total Ammonia Criteria expressed as Nitrogen:        |         |
| Acute Ammonia Criterion as mg N                         | 7.940   |
| Chronic Ammonia Criterion as N                          | 1.736   |

FACT SHEET FOR NPDES PERMIT WA0040738

PERFORMANCE-BASED EFFLUENT LIMITS							
USE EXCEL TO PERFORM THE LOGNORMAL TRANSFORMATION AND CALCULATE THE TRANSFORMED MEAN AND VARIANCE							
				LOGNORMAL TRANSFORMED MEAN =		3.1982	
				LOGNORMAL TRANSFORMED VARIANCE =		0.1854	
NUMBER OF SAMPLES/MONTH FOR COMPLIANCE MONITORING =						2	
AUTOCORRELATION FACTOR( ne)(USE 0 IF UNKNOWN) =						0	
					E(X) =	26.8676	
					V(X) =	147.047	
					VARn	0.1273	
					MEANn=	3.2273	
					VAR(Xn)=	98.031	
					MAXIMUM DAILY EFFLUENT LIMIT =	66.670	
					AVERAGE MONTHLY EFFLUENT LIMIT =	45.343	
					45.343365 - 43.15489		
<b>Arsenic Performance-Based Limit</b>							
Sampling Site Location	Sample Date	Result	LN(Result)	Sampling Site Location	Sample Date	Result	LN(Result)
Outfall 001	10/1/1999	22.00	3.09	Outfall 002	1/1/2000	6.90	1.93
Outfall 001	12/1/1999	50.00	3.91	Outfall 002	3/1/2000	25.00	3.22
Outfall 001	1/1/2000	31.00	3.43	Outfall 002	5/1/2000	26.00	3.26
Outfall 001	2/1/2000	25.00	3.22	Outfall 002	9/1/2000	25.00	3.22
Outfall 001	3/1/2000	11.00	2.40	Outfall 002	11/1/2000	25.00	3.22
Outfall 001	4/1/2000	13.00	2.56	Outfall 002	1/1/2001	9.00	2.20
Outfall 001	5/1/2000	25.00	3.22	Outfall 002	3/1/2001	11.00	2.40
Outfall 001	9/1/2000	40.00	3.69	Outfall 002	5/1/2001	25.00	3.22
Outfall 001	9/28/2000	25.00	3.22	Outfall 002	9/1/2001	25.00	3.22
Outfall 001	11/1/2000	61.00	4.11	Outfall 002	11/1/2001	25.00	3.22
Outfall 001	12/1/2000	45.00	3.81	Outfall 002	1/1/2002	25.00	3.22
Outfall 001	1/1/2001	58.00	4.06	Outfall 002	3/1/2002	25.00	3.22
Outfall 001	3/1/2001	42.00	3.74	Outfall 002	5/1/2002	25.00	3.22
Outfall 001	4/1/2001	25.00	3.22	Outfall 002	9/1/2002	25.00	3.22
Outfall 001	5/1/2001	25.00	3.22	Outfall 002	11/1/2002	25.00	3.22
Outfall 001	9/1/2001	25.00	3.22	Outfall 002	1/1/2003	25.00	3.22
Outfall 001	10/1/2001	25.00	3.22	Outfall 002	3/1/2003	25.00	3.22
Outfall 001	11/5/2001	25.00	3.22	Outfall 002	5/1/2003	25.00	3.22
Outfall 001	12/1/2001	25.00	3.22	Outfall 002	9/1/2003	25.00	3.22
Outfall 001	1/1/2002	25.00	3.22	Outfall 002	11/1/2003	25.00	3.22
Outfall 001	2/1/2002	25.00	3.22	Outfall 002	1/1/2004	5.00	1.61
Outfall 001	3/1/2002	25.00	3.22	Outfall 002	3/1/2004	24.00	3.18
Outfall 001	4/1/2002	25.00	3.22				
Outfall 001	5/1/2002	25.00	3.22	Column1			
Outfall 001	9/1/2002	25.00	3.22				
Outfall 001	10/1/2002	25.00	3.22	Mean	3.20		
Outfall 001	11/1/2002	25.00	3.22	Standard Error	0.05		
Outfall 001	12/1/2002	25.00	3.22	Median	3.22		
Outfall 001	1/1/2003	25.00	3.22	Mode	3.22		
Outfall 001	2/1/2003	25.00	3.22	Standard Deviation	0.43		
Outfall 001	3/1/2003	25.00	3.22	Sample Variance	0.19		
Outfall 001	4/1/2003	25.00	3.22	Kurtosis	4.00		
Outfall 001	5/1/2003	25.00	3.22	Skewness	-1.08		
Outfall 001	9/1/2003	61.00	4.11	Range	2.50		
Outfall 001	10/1/2003	46.00	3.83	Minimum	1.61		
Outfall 001	11/1/2003	25.00	3.22	Maximum	4.11		
Outfall 001	12/1/2003	25.00	3.22	Sum	198.29		
Outfall 001	1/1/2004	18.00	2.89	Count	62.00		
Outfall 001	2/1/2004	18.00	2.89	Largest(1)	4.11		
Outfall 001	3/1/2004	25.00	3.22	Smallest(1)	1.61		
				Confidence Level(95.0%)	0.11		

**APPENDIX D--RESPONSE TO COMMENTS**